



TORCH

Safety Magazine of AETC

January 1997



ORM
Here and Now



The Torch is symbolic of Education and Learning

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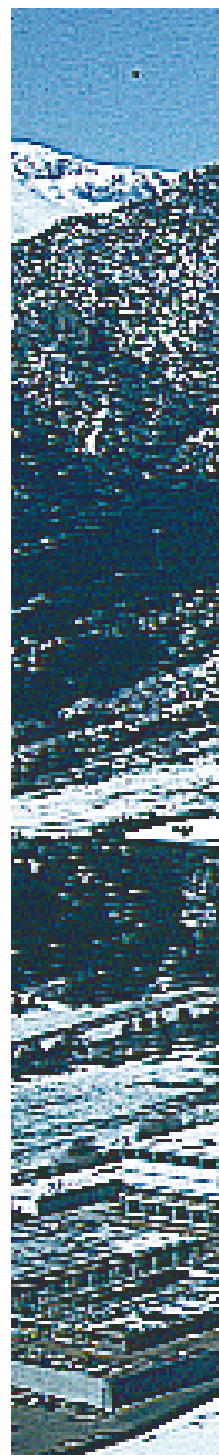
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by MSgt Fernando Serna, AFRRS

Please
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month's cover to
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About the Cover

A Columbus AFB, MS, AT-38 of the 14th FTW's 49th FTS gets a maintenance once over by a "Top Flight" inspector during a past competition. Operational Risk Management (ORM) plays an integral role in everything we do, from competitions like "Top Flight" to driving your auto. This month's focus is on ORM, beginning on page 2. Photo by MSgt Dave Nolan.

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View From The Top

by Gen Billy J. Boles



We constantly make decisions that affect the way we do business. . . many of these decisions involve risk.

Regardless of whether you are in an airplane, in a fab shop, on the flight line, in a supply office – basically anywhere in an Air Force work place – you face risk daily, and there must be a process for managing it.

Accordingly, Operational Risk Management (ORM) offers a fresh beginning. It's an opportunity for everyone in the Air Force to consciously influence the successful outcome of the operational mission. The purpose of Operational Risk Management is to identify risks and take reasonable measures to control, reduce, or eliminate the hazards.

The basic rules of Operational Risk Management are easy to digest:

- ◆ *Know the risks*
- ◆ *Do not accept unnecessary risk*



- ◆ *Make risk decisions at the appropriate level*
- ◆ *Accept risk when benefits outweigh cost*

These rules are basic common sense, and we must actively ingrain them in everything we do.

In this era of austere funding, we must strive to find new ways of doing business which reduce the amount of risk involved. . . accidents are just too costly! The price of doing military business may not require you and me to actually purchase aircraft fuel, parts, or even the aircraft themselves; however, it does require us to function efficiently within a system that performs those tasks. If the organization experiences fewer mishaps, efficiency and readiness are enhanced. If we can accomplish safe, realistic training, our efficiency and readiness are enhanced. If we can do our jobs, whatever they may be, safely, our war-fighting capability will



by MSgt Fernando Serra, AFRS

improve. Operational Risk Management is a strong positive step toward improving our efficiency, readiness, and ultimately our war-fighting capability.

I heartily endorse ORM and look forward to your innovative ideas for reducing risk and improving capability, helping us ensure we are successful and safe while providing mission-ready Air Force members. 🐝

Welcome To ORM 101

by Col Dave Roodhouse, HQ AETC/SEV, Randolph AFB

"Danger! Danger, Will Robinson!" Or so goes a memorable line from that vintage television show *Lost in Space*. Okay, okay — some of you smart alecks out there figured out "vintage" is a boomer code word for "old," but then again, how did you recognize that line? Reruns? Yeah, right!

We didn't call it by the same name back then, but our flailing robotic friend was exercising Operational Risk Management way before it was in vogue. Tell you more about it? Why sure! First off, we simply can't have such a long name for such a good idea, so we'll have to call this rascal ORM. Second, some synonyms for ORM could include opportunity management or perhaps benefit-risk tradeoff analysis. Whoops — synonyms are words that mean the same thing. So what's in it for me?

Well, Gen Fogleman thought it was a good idea in a 2 Sep 96 memo which kicked off the program, for starters. He wrote about the dramatic improvements world class organizations have enjoyed in their safety environments. Fewer mishaps translate directly into improved readiness and capability to fight and win if deterrence of conflicts should fail.

ORM is a different orientation for the operations, maintenance, support, and safety communities. Classic safety



programs deal in the realm of historic mishap experiences. If the rates are too high, then leadership focuses effort on the problem area. This approach produced steady improvements over the years, with decent results to date. The intriguing part is the Air Force may be able to reduce mishap rates further still by learning from other world class organizations. Sure, the Air Force mission is different from a commercial enterprise. But there are also a number of similarities in how we do business. The bottom line becomes — why wouldn't we want to make our environment more safe, especially if we could improve readiness and capability at the same time?

One of the main precepts of ORM is to forecast potential mishap areas and take action concerning the identified risks. Many of you are thinking, "we already do this," and you are exactly right. We deal with risk every day. Your drive to work may well be the riskiest part of the day, especially before that first cup of coffee. Of course, McDonald's has a whole different concept of the risks involved with driving and coffee.

You went through your risk analysis this morning by

thinking: (1) *I don't particularly like to drive to work in the morning, but (2) the benefit of a steady paycheck outweighs the "risk."*

This becomes so routine we don't even think about it, but you have done a risk-benefit tradeoff, and you have done it ahead of time. Safety professionals can and should play a role in analyzing the tradeoff, but the experts on the benefit side of the analysis are workers out on the line, aviators slipping the surly bonds, and leadership charged with making it all happen. ORM is very much a creature of operations, and not nearly so much a product of the safety office.



by TSgt Dave Nolan



by MSgt Fernando Serna, AFRS

In today's Air Force, folks are encouraged to suggest improvements in their local workplaces. ORM continues this concept by placing some of the responsibility for risk decisions with the individual.

Four simple rules help frame this process:

- 1) *Know the risks*
- 2) *Do not accept unnecessary risk*
- 3) *Make risk decisions at an appropriate level*
- 4) *Accept risk when benefits outweigh the costs*

Common sense, aren't they? But just as common sense sometimes seems to be all too *uncommon*, these rules can be tough to apply, so we need to do a little homework first. This is where the 6-step ORM process comes into play.

The ORM process is intended to methodically explore the work environment, come to terms with risk, and accomplish the mission.

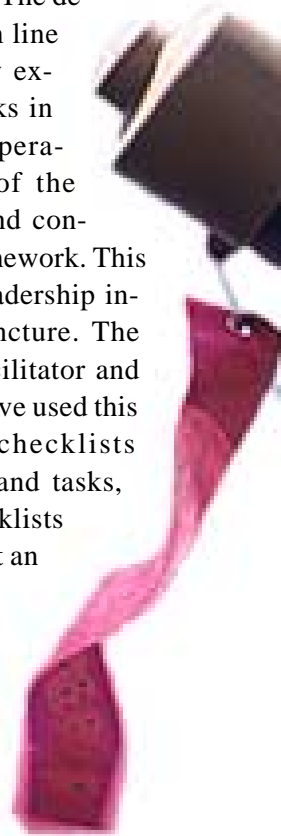
By now you're so excited about ORM you can hardly wait for the six steps. Well, so as not to disappoint:

- 1) *Hazard identification*
- 2) *Risk assessment*
- 3) *Analyze control measures*
- 4) *Make control decisions*
- 5) *Implement*
- 6) *Supervise*

These steps are simple enough, but a lot of rigor can be brought to bear on each one. This is a "bullet" world class organizations have bitten to set the standards for their fields and beyond.

This 6-step process really has two main parts — deliberate (or advance planning) and real-time. The deliberate part draws from line worker and supervisory expertise to scope out risks in current or proposed operations, perform some of the risk-benefit analysis, and contribute to a decision framework. This is a team effort with leadership involvement at every juncture. The safety office acts as facilitator and advisor. Several units have used this process to develop checklists aligned with missions and tasks, and they use these checklists to make risk decisions at an appropriate level.

The real-time part kicks in when it's time to execute the mission. An example might be bumping up the go-no go decision to the



group commander if an important mission or training event needs to be flown in poor weather by a newer crew. Another might be an engine change outdoors in the same poor weather. The idea behind the checklists is to make operational decisions at the lowest appropriate level.

Again, this is stuff we have been doing for a long time, just not in the same organized fashion afforded by ORM. And in the training environment, a checklist may only be a factor for senior supervision to take a mental inventory of resources as a shift begins. Different tools may work better for different units. The critical components are the team effort examining the risk ahead of time and the willingness of line personnel to sound off when things don't look right.

We plan to take this one step at a time, as with any journey of significance. This article is one of the initial efforts to spread the word. We'll be getting organized with training programs, handouts, and briefings galore. However, we want to keep the common sense bubble centered throughout the implementation period. Subsequent TORCH articles will cover the steps in the ORM process and then delve into some of the nuances and tools available.

With ORM, we plan to improve capability while decreasing mishaps. That's what our robot friend was doing for young Will Robinson. After all, Will was always back the next week for another exciting episode. Golly, that's the

same goal for you! Dare I say

ORM may keep you from
being *Lost in Space*? 🐝





Becoming Civilized

by Lt Col Roger Sharp,
Air Force Services
Aero Club
Program Manager

Whether because of cut-backs in military flying hours, moving to desk jobs, or simply the desire to use an airplane for personal reasons, many military pilots turn to civil aviation...some with disastrous consequences. Significant differences exist between military and civil aviation, posing potential hazards to the unwary pilot transitioning from military flying. Here are a few things even the best military pilot needs to think about:

Aerodynamics

The Lighter Side of Aviation

Compared to the jets you fly, general aviation (GA) aircraft have relatively light wing loadings. This can come as a surprise when you're trying to center the needles on an ILS in mild turbulence or simply making a visual approach on a hot, bumpy day.

Relative to the aircraft you've been flying, you will have to make large power adjustments to control your airspeed. If you don't, you'll find your-

self fast, floating (seemingly forever) in ground effect, or trying to force the aircraft onto the runway as you watch more than half the 3000' runway disappear behind you. "I swear, I just touched the brakes" is the usual statement when you find yourself looking at that blown tire or watching the locals untangling your aircraft from the barbed wire fence that used to be at the departure end.

Oh, and if you subconsciously move the yoke/stick of your GA aircraft at the same rate you have been accustomed to when flaring your "Heavy Iron," you'll find yourself almost instantly 30 feet in the air. If you were on speed to begin with, you aren't any longer. If you make the decision to salvage this landing (not your best decision of the day), you're probably not accustomed to just how far forward you need to push the stick to recover (It'll give ya ground rush). Most folks who try will flare early, run out of airspeed, and drop the aircraft in from about 2-3 feet. The typical GA aircraft landing gear won't take a lot of these landings, and you can easily bend some steel.

While we're discussing gear, most GA aircraft have relatively low crosswind landing capabilities — 12-15 knots — and it takes finesse to do it well in a relatively mild breeze. Since most pilots don't get the opportunity to practice crosswind landings during their checkouts, lots of props end up bent and wing tips scraped when the wind blows across the

runway. (Both the T-38 and FB-111 I flew were relatively easy aircraft to land compared to a Piper Cub on a windy day.)

Aircraft Systems

Not Exactly What You May Be Used To

While some GA aircraft have avionics that rival the jets you fly, typically these are not the ones someone is willing to let you rent. Most have very basic instrumentation, and redundancy is not the hallmark of the GA industry. Hard IMC (Instrument Meteorological Conditions) is not the time to find out the gyros are prone to precession and you have no alternate source of power for your attitude indicator. "No sweat, gotta standby" is true, but try flying an instrument approach on the standby (they call it a turn coordinator), add a little turbulence, and then ask yourself if you would want to try this in IMC with your family onboard.

Speaking of redundancy, let's not forget the engine...yes, THE engine. Typically there's only one, and if it fails,

Significant differences exist between military and civil aviation, posing potential hazards to the unwary pilot transitioning from military flying.



there's no ejection seat and typically no parachute. Unless you have practiced for this possibility, you may find it a bit challenging to glide the aircraft to a survivable landing. Flying GA aircraft may also be the first time you have ever pondered minimum enroute ceilings on an IFR flight. If the engine should quit (and they do), 300' is not a lot of time to break out of the clouds and find a place to land...1000' ain't easy either.

By the way, most GA attitude indicators are powered by an engine-driven vacuum pump, so you may have to make your descent to VMC (Visual Meteorological Conditions) on that standby I mentioned earlier. All this discussion of

systems failure begs the obvious question...what about maintenance?

Maintenance

The Black-Hole of General Aviation

Every major GA component manufacturer recommends a time between overhauls or replacement — but. . .surprise. . .civil operators are not obligated to comply with that interval. As long as the aircraft is signed-off each year or every 100 hours for aircraft operated for hire, it is legal to fly. Said another way, fly-to-fail component changes are both legal and the standard of the industry.

Let's also take a moment to talk about the folks who maintain those aircraft.



While licensed, civil mechanics have no requirement for continuation training or recertification. Once they pass a written and practical test, they are good for life. There is no requirement for “type training” programs for civil mechanics. In other words, there are some good ones and some not-so-good ones out there. Don’t get me wrong. . .I’m not criticizing civil mechanics, but I am criticizing the system that allows this to be legal.

Regulatory Differences Or How To Lose That Rating You Never Used Before

The statement in AFI 11-206 that says “The FARs (Federal Air Regulations) govern Air Force pilots” probably does not mean you have actually read them with the mindset that you actually intend to fly under those regulations. There’s a host of potential certificate-suspending “gotchas” out there. If you value that piece of paper, you need to fully understand the civil regulations and how they affect you.

Here’s another thought for you to ponder...even if you are fully qualified, think about the regulations that allow a 125-hour pilot to take-off in zero-zero conditions or to begin an instrument approach when the weather is below minimums. Think about the regulations that allow a GA pilot to keep legally current by making

three landings once every 24 months. While most would not do this, you share the same airspace, and now the same airports, with these people.

VFR . . . Real VFR

I never had a lot of opportunity to fly “VFR” in the military, and when I did, it was not much different than flying IFR (at least in the CONUS). You talked to the same tower, the same approach control, and sometimes the same center. It’s a little different to takeoff from one airport and fly to another without ever talking to anyone. You remember those colored circles on the sectional chart? You may end up asking yourself, “What kind of stuff do I need to fly into that Class D airspace again...did I just fly into it without a clearance?”

Not only will you fly into airports that don’t require use of a radio, but there is no legal requirement for pilots to land on the same runway everyone else is using. You may find yourself on short final only to see another aircraft on short final to the opposite end. You may find the whole process a lot more like a major military exercise where *everyone* is reporting “initial” and “min fuel” at the same time and for the same runway. At least in the military, we only use one end of the runway at a time.

Technical Data?

This is the GA equivalent of a Dash One...maybe. As a military pilot, you’re used to believing the numbers in the Dash One. . .in the GA community, the technical data is just as exact. The numbers were exactly correct for a new engine, in a new aircraft, with a test pilot, under ideal conditions.

Think about the regulations that allow a GA pilot to keep legally current by making three landings once every 24 months. While most would not do this, you share the same airspace, and now the same airports, with these people.



by MSGT Dave Nolan

**Try landing a
Cessna 172 with
flight boots on
— odds are
you'll touchdown
with the brakes
engaged and
blow a tire.**

The aircraft you are likely to fly probably doesn't fall into the heading of new. In fact, it's probably over 20 years old with all the dents and wrinkles to prove it. For example, if you put your faith in the "numbers" and over a typical 4-hour flight your fuel consumption is just about 10% more than you planned, you can easily eat up your entire fuel reserve. (*See forced landing procedures in the 4th paragraph.*)

Little Things You May Not Have Thought About

All planes have their quirks — GA is no different. Try landing a Cessna 172 with flight boots on — odds are you'll touchdown with the brakes engaged and blow a tire. Why?

The way the seat is arranged, it's difficult not to push on the top of the pedals, where the brakes are, because your flight boots keep you from flexing your toes back far enough not to ride the brakes. Try the same thing in most Piper trainers, and you are likely to catch your toes on a structural support tube that runs across the cabin just above the rudder pedals. You can push all day on that tube and never hit the brakes.

There are as many quirks as there are GA aircraft. The key is good training from someone who really knows the aircraft. By the way, a civil instructor pilot (CFI) can legally, for all intents and purposes, instruct in any single engine civil aircraft of the same landing gear configuration, regardless of his/her experience or time in type. Make sure your instructor is really qualified.



Insurance

Unfortunately Not Yours

Insurance is another problem in the GA world. Most Fixed Base Operators (FBOs) have insurance for their aircraft — problem is the FBO is the insured, not you. If you are unfortunate enough to bend an aircraft, the insurance company will pay the FBO and then come looking to you to recoup its loss. Unless you have anywhere between \$15,000 and \$60,000 dollars in loose change behind your couch cushions, you should seriously consider additional coverage. By the way, most states don't require the FBO to disclose its policy limitations to a pilot renting its aircraft.



Maybe Your Worst Enemy

Ego...yep, your ego. If you weren't a little more aggressive, confident, and willing to embrace and solve problems than the average person, you probably would not be where you are today. Congratulations, but remember there is a very fine line between a healthy ego and arrogance. I've known more than a few military pilots who think flying "bug smashers" is a piece of cake. After all, they fly jets! I don't want to take up your time with war stories this time, so let's agree that just because you have a license does not mean you are qualified to use it.

Transitioning to any aircraft requires a good training/checkout program. Don't let yourself be short changed. There are a lot of young CFIs out there who look to a military pilot with a certain degree of awe (boy, have we got them fooled). After all, you are the epitome of what they want to be. They may assume you know a lot more about civil flying than you really do!

How To Do It Right

Join an Air Force aero club. They have the lowest accident rate in the industry. They have professional instructors, well maintained aircraft, cheaper rates, and their insurance covers you! 🐝

**Transitioning to
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AETC and Civil Aviation



by Lt Col Charles Baumann,
HQ AETC/SEF,
Randolph AFB
photos by
TSgt Dave Nolan

In AETC this past year, we had two off-duty, light aircraft mishaps which resulted in four fatalities. Both mishaps involved experimental, home-built aircraft. Neither mishap was associated with one of our aero clubs. Just as Lt Col Sharp previously said, aero clubs have had

very good safety records while providing their members with thousands of hours of safe, economical, enjoyable flying. However, whether you fly privately through an aero club or on your own, you must remember you're involved in what AETC considers a high-risk activity.



Beyond the type of aircraft involved in these mishaps, other similarities exist between these two incidents. Both mishaps happened far from home, involved experienced pilots, occurred after prolonged duty hours, and involved challenging environmental conditions. The pilots may also have misjudged their aircrafts' capabilities, their own capabilities, the weather, and certainly the risks involved.

In aero club operations, we provide maintenance, stan-eval, and supervisory programs which let us spread out the risk analysis. In the end however, the private pilot must still take on some (virtually all if you fly outside an aero club) of the responsibility for the risks involved. As an aircraft co-owner, I can assure

you these responsibilities are not to be taken lightly.

Here's some of the risk analysis I do before each flight:

1) Am I ready to fly? I mean more than check for a head cold. Am I rested, both mentally and physically, enough to

handle the flight? Some days I'll fly after work, but on others, I know I have no business in an aircraft. Do you know the difference?

2) Is my airplane ready to fly? Does its capabilities match the flight, or am I really expecting too much? How about maintenance — now is a good time to verify all is well, because the feds and the insurance company will certainly check if there's a mishap.

3) Can I really complete the flight? Can I get there with reserves within the limits of fuel, time, and weather? All too often we do things on the edge without taking into account what can go wrong. Just because the destination weather's supposed to be good doesn't mean it will be. Do I have reserves, both in terms of fuel and stamina, to handle the unexpected?

Am I taking things too far? You may think so, but as the pilot in command, you owe it to yourself and your passengers (quite often your family) to realistically assess all the risks involved and take whatever actions you can to minimize those risks.

Two of the fatalities I discussed earlier were one pilot's dependent wife and the other pilot's 5-year old daughter. . . just how far should we take risk analysis? 🐝

In aero club operations, we provide maintenance, stan-eval, and supervisory programs which let us spread out the risk analysis.



The Making Or Breaking Of A Safety Mishap Board



by Mr. Jay Lord,
HQ AETC Explosives
Safety Manager,
Randolph AFB

For years, mishap investigation boards, both interim and formal, have been formed to investigate and determine the root causes of a mishap to ensure a mishap of this same type never happens again. In the early stages of mishap investigation, the effectiveness of the formal mishap investigation board depends heavily upon the work the interim board previously accomplished or failed to accomplish.

Several years ago, as a Numbered Air Force weapons safety officer in another command, I was appointed as the investigation officer for a Class A missile mishap. A formal board was formed and in place at the base within 24 hours of the mishap.

Our first board president (yes, I said our first) had been formally trained;

however, the training received at that time was only a half day long followed by war stories by past board presidents that took up the rest of the day. The remaining board members, although qualified in their positions, received very little training at their units. As a result, we were off to a slow start. For those of you who have served as members on mishap investigation boards, does this story sound familiar?

When we arrived at the base, we were briefed by the interim board president and given a work area. The area was spacious enough but virtually bare with only one phone line and no administrative supplies or file cabinets. Also, we arrived during a three-day weekend; the base was deserted, and we were told administrative support would have to wait

until the following Tuesday. This meant we were already two days behind in our 30 day deadline. And we weren't helped by the fact that two of the witnesses had been allowed to go on leave (one was on the other side of the U.S. and wouldn't return for two weeks).

When we found ourselves on a deserted base and in a poor work area with no administrative support or supplies, we decided to go immediately to the mishap location. The interim board did a good job of preserving the scene even though it was off base. Several witness statements had been taken, but many had not. We only had name, rank, and organization for these people.

The second day we were there, our board president's wife called, telling him her mother passed away. He then called the MAJCOM safety office and requested he be removed. On the third

day, he was replaced with a new board president. Shortly thereafter, our work area was moved at the request of our new president; administrative support and supplies appeared; and additional phone lines were installed.

The board faced several other obstacles and road blocks during this mishap, but that's not the issue. The point which needs to be emphasized is the success of either board is directly proportional to the right combination of trained board members. For your interim board positions, if at all possible, have more than one trained person for critical leadership positions so you can avoid the complications of experiencing a mishap while your only trained member is on leave or TDY.

Sometimes the interim safety board is placed in a delicate situation where pressures are brought upon them to ex-

When we found ourselves on a deserted base and in a poor work area with no administrative support or supplies, we decided to go immediately to the mishap location.





pedite the gathering and preservation of evidence and make quick assessments of the mishap scene so the area can be cleared. Often, the interim board forgets they are in control and succumb to pressures or perceived pressures which are actually within their power to control.

As a result, precious evidence is often swept up and rendered unusable. Every interim mishap board member must know how to perform the essential elements of their responsibilities to protect the environment so investigators who follow will have enough evidence to determine the mishap's cause.

Here are some suggestions to help improve the effectiveness of interim and formal mishap investigation boards:

For the interim board—

a. Assume control and preserve the mishap scene and all evidence. Coordinate with the Disaster Control Group and be aware of explosives and other dangerous material in wreckage.

b. Make a list of all witnesses and obtain written statements from each as soon as possible.

c. Photograph the scene before any movement of evidence; video tape if possible.

d. Obtain any photos or video tapes made by other personnel on scene.

e. Collect all applicable records and electronically stored data, i.e. training and certification records of personnel and vehicles, voice tapes, etc.

f. Package and mark parts for identification.

g. Prepare for the mishap investigation board's arrival:

1. Select a board recorder, preferably a junior officer or NCO familiar with administrative duties.

2. Set up a secure work area to include both Class A and B phones, computers, administrative support and supplies, locking filing cabinets, video equipment, etc.

3. Arrange quarters for members.

4. Set up transportation and meet board members.

h. Obtain a copy of initial OPREP report and initial public affairs news release.

i. Retain a copy of Preliminary 8-hour safety message.



j. Prepare the in-brief for mishap investigation board president.

For the mishap investigation board—

a. Receive the in-brief from interim board, and receive all records, witness statements, data, photos, video tapes, messages, etc. pertaining to the mishap.

b. Notify MAJCOM/SE the board is in place

c. Visit mishap scene, view wreckage, and review work interim board accomplished.

d. Return to the work center; ensure you have all you need to get started.

e. Establish a work schedule to include times for formal meetings preferably at the beginning and at the end of each day.

f. Have a plan to prevent loss of information.

g. Have the mishap board president, with the help of his investigation officer, explain the formal report, how the members are responsible for their portions of the report, and the process required to complete it.

h. Conduct recorded interviews:

1. Begin interviews while the scene is still fresh in the witnesses' minds.

2. Review AFI 91-204, "Safety Investigation and Reports" para. 3.6.5, "Witnesses" for details concerning witnesses.

3. Conduct individual interviews.

4. Keep witnesses separated to prevent a group consensus from obscuring individual observations.

i. Review all records, files, tapes, photos, etc. to determine if others are required.

j. Request technical assistance if needed through MAJCOM channels.

k. Periodically brief the MAJCOM/SE on the progress of the mishap board.

To be fair, the burdens and responsibilities of both the interim and formal mishap investigation boards are many. They have to make sense out of the first few hours of catastrophe.

They have to organize chaos, and mistakes will be made. What we try to do is minimize the mistakes so they will have less impact on the resolution of causal findings. Through teamwork and proper procedures, interim and formal mishap boards can help us learn from one mishap to reduce the risks of having another. ✈

Every interim mishap board member must know how to perform the essential elements of their responsibilities to protect the environment so investigators who follow will have enough evidence to determine the mishap's cause.



Reflections Bottled!

by Col Johnny Weida,
12th OG/CC, Randolph AFB

by MSgt Fernando Serna, APRS

ons On A Tragedy

30 Sept 96 – 3:30 p.m. I was sitting in my office doing paperwork when I got a phone call from the commander of the 557th Flying Training Squadron at the Air Force Academy in Colorado Springs. His words sent a chill down my spine: "Sir, we have an aircraft overdue."

I spent the next hour following the progress of the search and rescue effort, keeping the chain of command informed, and praying the crew would be found unharmed. Unfortunately, the search and rescue aircraft and a county sheriff found the crew of two, Capt Clay Smith and Cadet Dennis Rando, dead in the wreckage of their T-3A aircraft.

The next week was spent working the many unpleasant details in the aftermath of an aircraft mishap with fatalities: notifying the next of kin, preparing the memorial service, organizing a safety investigation board, and coping with the many emotions and concerns of squadron members and their families.

The morning after the mishap, my deputy and I flew up to the Academy to be with the squadron in this difficult time. As I sat in the passenger compartment during the flight to Colorado Springs, I tried to come up with some-

thing to say to the members of the squadron to help them put this tragedy in proper perspective. This was the second fatal mishap for the squadron in a year and a half. In February 1995, a student and an instructor were killed in a T-3 accident attributed to pilot error and inadequate training. The squadron had a difficult time getting back on track after that accident.

We were determined then to prevent a similar situation from occurring. We did several risk assessments of our entire T-3 operation. These assessments led to several changes to our operation which we hoped would prevent another mishap; but the fact remained, we had another pile of T-3 wreckage and two dead aviators.

As I wracked my brain trying to come up with the right words to give the squadron, I reflected back to other similar situations from my past. During my career, I have personally seen the aftermath of at least 20 class A mishaps, about half of which involved fatalities. From each of these tragedies, something positive always emerged.

First of all, each of these mishaps caused everyone close to the event to reflect on their own lives. Each person



reevaluates his or her priorities and motivations. As we see the pain the families of the deceased are experiencing, we tend to spend more quality time with our own families.

Life seems to take on a richer meaning when death occurs so close to us. We feel a little less bulletproof, and we are not as likely to take the gift and blessing of God-given life for granted.

We tend to appreciate friendship more as we mourn the loss of a fellow warrior. We see the impact people have had on us when they're gone. We reflect on what great people we have in the Air Force — people with a common set of core values hard to find in this society.

The more I thought about the quality of people we have in the Air Force, the more I realized they are the major reason I stayed in all these years. It's a pleasure working with such great folks. Capt Clay Smith was one of them. His personal mission statement is a testimony to the quality person, officer, and aviator he was: "... to make my life a journey toward true inner peace. To share love with everyone I meet. To resist the slide back into pettiness and mediocrity. To make integrity the solid foundation from which I think, speak, and act. To help others discover that which is truly important in life. To make the most out of life, living with no regrets. Be an example to others, especially children. . ."

Each fatal mishap caused me to also reflect on the seriousness of aviation. Every day an aviator straps on an aircraft to fly is a day he or she may be called upon to "confront the demons," as retired Gen Chuck Yeager says.

All aircraft emergencies are no-nonsense. Aviation is a business where the saying "success is where opportunity meets preparation" really rings true. We may practice in case we have an emergency, but no one ever plans to have a mishap. After each fatal mishap, I renew my commitment to be as prepared to fly as is humanly possible. To do anything else is to rely on luck, and sooner or later, luck runs out.

These mishaps also showed the value of a team effort. We all know it takes more than aviators to make all our landings equal to all our takeoffs. It takes maintainers, supply troops, weather folks, air traffic controllers, foremen, civil engineers, and a host of other specialties and disciplines to make it all work right.

Everyone must be committed, every day, to making a positive contribution toward mission accomplishment. Any other approach is also relying on luck. Professionals don't rely on luck. Someone once said, "It is better to be lucky than good." Not so in our business. Our team members are committed to excellence in all we do. To do otherwise would spell disaster.

The deaths of Capt Clay Smith and Cadet Dennis Rando do not have to go down in history as only a tragic accident. No matter what the safety investigation board finds as a cause, we can all take something positive from their deaths. Life is too short, friendship too valuable, aviation too serious, and teamwork too important to think any other way. ✈

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by MSgt Fernando Serna, AFRS



Warning!

by Mr. Ken Jolley, HQ AETC/SEG, Randolph AFB



Batteries Are Dangerous

Recent articles and message traffic are full of warnings about the perils of handling, storing, and using lithium batteries. After reading all the comments and mishap traffic, I got to wondering — is this really some new danger previously unknown to mankind?

Let me recall. . . have you ever heard of a lead/acid car battery exploding? I remember a person trying to jump start a car. The two cars were touching bumper to bumper (mistake #1), and the dead battery was causing a heavy draw on the good one. Under this heavy, rapid power drain, the good battery vented explosive fumes — hydrogen gas — and when the positive jumper cable was the first disconnected (mistake #2), a spark jumped the gap — BOOM!

In their article for the Fall issue of the Navy's *Safetyline* magazine, Beth Walter and Capt Keith T. Rivinius, USMC, state the following: "Lithium sulfur-dioxide batteries contain pressurized sulfur-dioxide liquid. When this liquid becomes a gas, it is highly toxic because it turns into sulfuric acid when it touches moist mucous membranes." How about a little sulfuric acid in you eyes — OUCH! But again, this really sounds like basi-

cally the same stuff as in the old lead/acid cells.

OK, these newer, more compact, super duper battery cells can indeed be somewhat more dangerous, but my point is. . . if you get your face disfigured or your fingers blown off by an exploding battery, are you really going to care which kind it was?

Walter and Rivinius offer some advice for handling lithium batteries: If a battery shows signs of damage or swelling, don't use it; keep batteries from getting wet, or they can produce hydrogen gas; store batteries in a cool, dry place; and for instructions on the proper way to dispose of batteries, contact your environmental shop. These are some excellent tips for handling all batteries.

Under the right conditions, all batteries can explode, splashing you with acid or causing other physical trauma, generally ruining your day, week, month, year, life... yes, lithium batteries are dangerous, but so are all the rest of them. Handling, storing, using, and disposing of batteries of any kind require properly trained and equipped people using proper safety procedures.

Let's face it. . . all batteries are potential chemical munitions — treat them as such. 🐝

"Under the right conditions, all batteries can explode, splashing you with acid or causing other physical trauma."

Done With Your Christmas Shopping?

Bet you thought the season was over.

You drained your budget on the skateboards, the roller-skates, the in-line skates, the bikes, but did you buy them the equipment which could save their lives?

Remember, all skateboarders, roller-skaters, in-line skaters, and bicyclists are required to use helmets on all AETC installations.

But it's really the right thing, the safe thing, the only thing to do. . .

So if you didn't get them the equipment for Christmas, finish your Christmas shopping — buy the protective equipment and make them wear it.

Make Them Play
It Safe — And
While You're
At It, You
Do the
Same.

